



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

GERD MARXSEN  
AXEL PREUSSE  
MARKUS NOPPER  
FRANK MAUERSBERGER

Serial No.: 10/666,195

Filed: September 19, 2003

For: METHOD OF ELECTROPLATING  
COPPER OVER A PATTERNED  
DIELECTRIC LAYER TO ENHANCE  
PROCESS UNIFORMITY OF A  
SUBSEQUENT CMP PROCESS

Group Art Unit: 2811

Examiner: Unknown

Attorney Docket: 2000.109000/DE0133

Customer No.: 23720

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

CERTIFICATE OF MAILING

I hereby certify that this paper or fee is being deposited with the United States Postal Service with sufficient postage as "FIRST CLASS MAIL" addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, this 27<sup>th</sup> day of May, 2004.

*Mary Paul*  
\_\_\_\_\_  
Signature

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

In accordance with 37 C.F.R. §§ 1.97(g),(h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be

an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

In accordance with 37 C.F.R. § 1.97(e)(1), Applicants hereby certify that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the present statement, as evidenced by the date of the enclosed letter from the German associate.

Applicants respectfully request that the listed documents be made of record in the present case.

Respectfully submitted,

WILLIAMS, MORGAN & AMERSON  
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Date: May 27, 2004

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Form PTO-1449 (modified)

Atty. Docket No.

2000.109000/DE0133

Serial No.

10/666,195

**List of Patents and Publications for Applicant's****INFORMATION DISCLOSURE STATEMENT**

(Use several sheets if necessary)

Applicant

Gerd Marxsen, Axel Preusse, Markus Nopper and  
Frank MauersbergerFiling Date:  
September 19, 2003Group:  
2811**U.S. Patent Documents**

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**Foreign Patent Documents**

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**Other Art**

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**U.S. Patent Documents**

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
	A1	2001/0015321 A1	8/23/01	Reid <i>et al.</i>	205	103	
	A2	6,346,479 B1	2/12/02	Woo <i>et al.</i>	438	687	
	A3	6,350,364 B1	2/26/02	Jang	205	118	
	A4	2002/0195351 A1	12/26/02	Lu <i>et al.</i>	205	574	

**Foreign Patent Documents**

Exam. Init.	Ref. Des.	Document Number	Date	Country	Class	Sub Class	Translation Yes/No
	B1	WO 03/009361 A2	1/30/03	PCT	H01L	21/288	Yes

**Other Art (Including Author, Title, Date Pertinent Pages, Etc.)**

Exam. Init.	Ref. Des.	Citation
	C1	Cerisier <i>et al.</i> , "Growth Mode of Copper Films Electrodeposited on Silicon from Sulfate and Pyrophosphate Solutions," <i>J. Electrochem. Soc.</i> , 146:2156-62, 1999
	C2	Data Sheets (in German) "Polyether" and "Polyalkylene Glycol", 2003
	C3	Reid <i>et al.</i> , "Factors Influencing Damascene Feature Fill Using Copper PVD and Electroplating," <i>Solid State Technology</i> , pp. 86-103, July 2000
	C4	Hong <i>et al.</i> , "Developing Metrology for Controlling Cu-electroplating Additives," <i>Solid State Technology</i> , pp. 57-59, October 2002
	C5	Banerjee <i>et al.</i> , "Simultaneous Optimization of Electroplating and CMP for Copper Processes," <i>Solid State Technology</i> , pp. 83-88, November 2001
	C6	Smekalin <i>et al.</i> , 'Tuning the Process Flow to Optimize Copper CMP,' <i>Solid State Technology</i> , pp. 107-112, September 2001

**EXAMINER:****DATE CONSIDERED:**

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.